MPL-AY4020-5R6

Molded Inductor 5.6µH

APPLICATIONS

- Battery-powered devices
- Portable devices
- Embedded computing
- High-current SMPS
- High-frequency SMPS
- POL converters
- FPGA

FEATURES

- Size 4.45mmx4.1mmx1.8mm
- Molded Construction
- Low Audible Noise
- Soft Saturation
- Stable Over High Temperatures
- Max Operating Temp +155°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

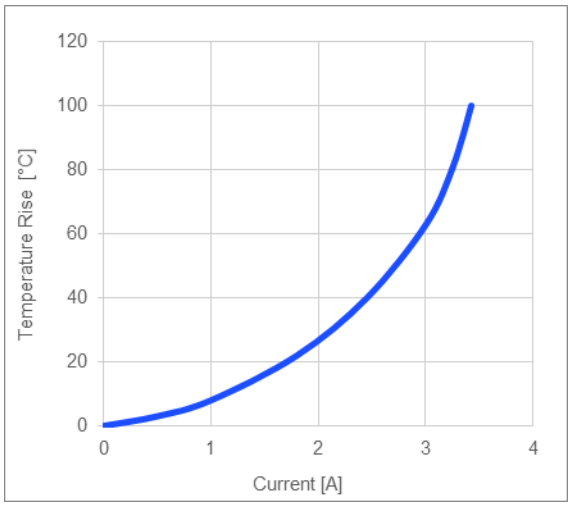
Parameter			Value	Unit
Inductance (1)	L	±20%	5.6	µH
Resistance	R_{DC}	typ	97	mΩ
Resistance MAX	$R_{DC\ MAX}$	max	116	mΩ
Rated Current (2)	I_R	typ	2.45	A
Saturation Current 25°C (3)	$I_{SAT\ 25°C}$	typ	2.6	A
Saturation Current 100°C (4)	$I_{SAT\ 100°C}$	typ	2.6	A
Resonance Frequency	f_r	typ	23	MHz

GENERAL SPECIFICATIONS

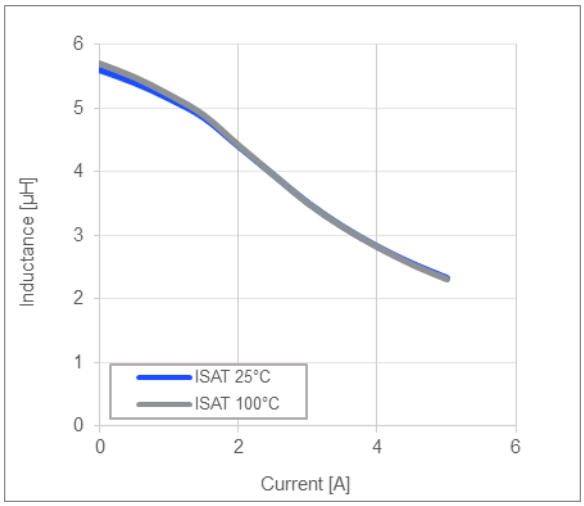
(1) Inductance	Measured at 100kHz, 100mA
(2) Rated Current	Rated current will cause the coil temperature rise ΔT of 40K *I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35µm Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.*
(3) Saturation Current 25°C	Saturation current will cause L to drop from 30% at 25°C ambient temperature
(4) Saturation Current 100°C	Saturation current will cause L to drop from 30% at 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% RH if not given differently
Operating Condition	Operating temperature: -40°C to +155°C (including temp rise) Should not exceed +155°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

TYPICAL PERFORMANCE CURVES

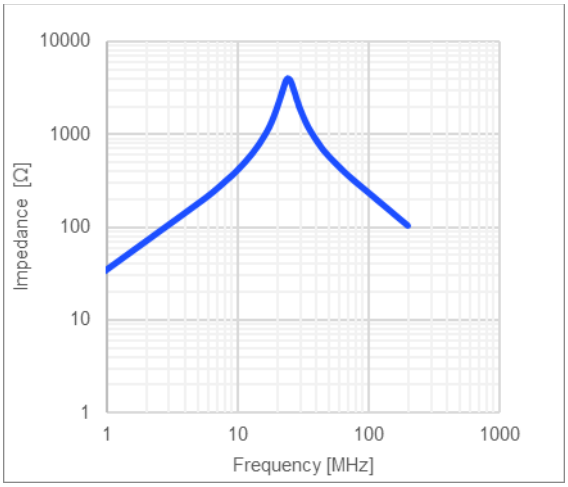
Temperature Rise vs. Current



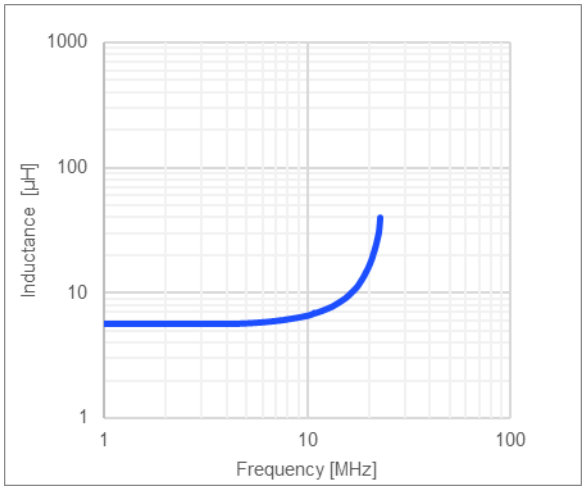
Inductance vs. Current



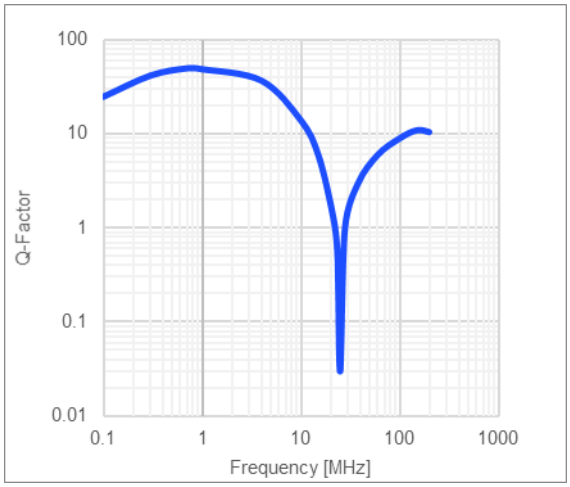
Impedance vs. Frequency



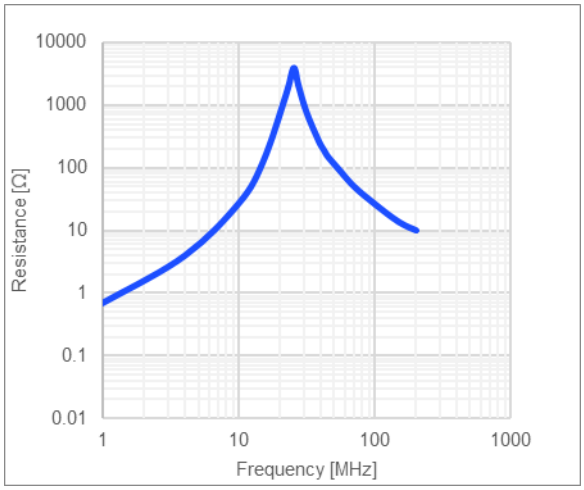
Inductance vs. Frequency



Quality Factor vs. Frequency

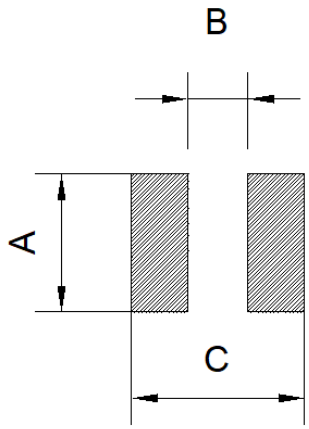


AC Resistance vs. Frequency



LAND PATTERN

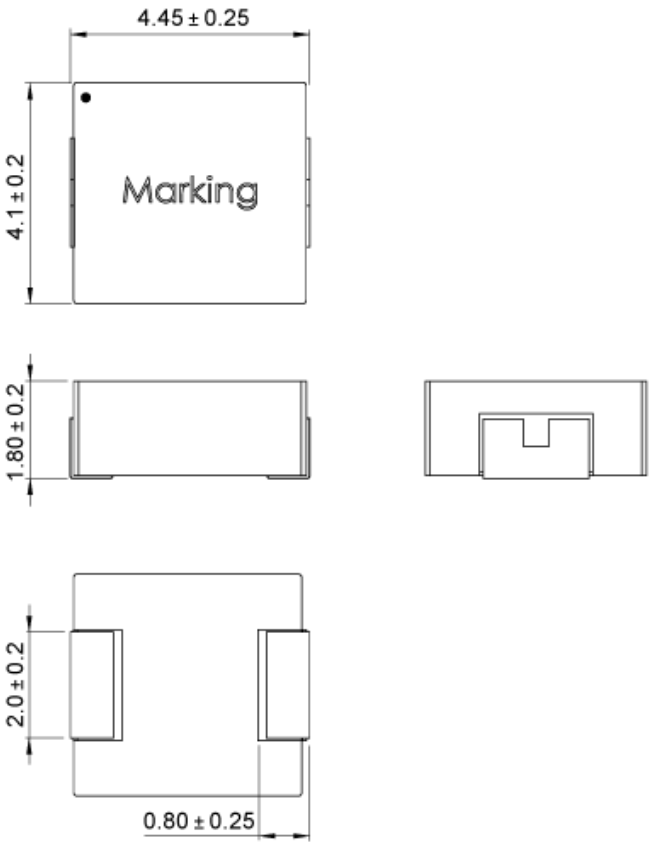
Dimensions	
A	2.50 ref.
B	2.20 ref.
C	5.20 ref.
	(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



TOP MARKING

Marking	
Start of Winding	· (dot)
Inductance Code	5R6

ORDERING INFORMATION

Part Number	L (1) typ (µH)	R_{DC} typ (mΩ)	I_R (2) typ (A)	$I_{SAT\ 25°C}$ (3) typ (A)	$I_{SAT\ 100°C}$ (4) typ (A)
MPL-AY4020-5R6	5.6	97	2.45	2.6	2.6
MPL-AY4020-6R8	6.8	129	2.20	2.4	2.4
MPL-AY4020-8R2	8.2	136	2.10	2.1	2.1
MPL-AY4020-100	10	163	1.90	2	2

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(3) **Saturation Current** $_{25°C}$	Saturation current will cause L to drop from 30% at 25°C ambient temperature
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Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

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